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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,600	09/22/2003	Jung-Il Han	0630-1844P	6368
2292	7590	12/04/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			MAI, TAN V	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	
			2193	

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/665,600

Applicant(s)

HAN, JUNG-IL

Examiner

Tan V. Mai

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 2 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. The drawings are objected to because the label "DINR[11:0]" (bottom) and "DOUTr[13:0]" (bottom) of Fig. 3 should be --DINI[11:0]—and -- DOUTI[13:0]--, respectively. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Claims 5 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 5 and 12, the terms "method" (first line) should be --device--.

Art Unit: 2193

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kozaki et al '098.

Kozaki et al teach, e.g., see Figs. 5-10, the claimed invention. Kozaki et al's device performs FFT or IFFT, e.g., see claim 1. It is noted that Kozaki et al's device should have the claimed "control signal input unit" for selecting the desired operation.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kozaki et al '356.

Kozaki et al teach, e.g., see Figs. 1, 16 and 18, the claimed invention. Kozaki et al's device performs FFT or IFFT, e.g., Abstract. It is noted that Kozaki et al's device should have the claimed "control signal input unit" for selecting the desired operation.

6. Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Olofsson et al.

Olofsson et al teach, e.g., see Fig. 2, the claimed invention. Olofsson et al's device performs FFT or IFFT, e.g., Abstract. It is noted that Olofsson et al's device should have the claimed "control signal input unit" for selecting the desired operation.

7. Claims 1, 3-8 and 10-12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Chen et al.

As per independent claim 1, Chen et al teach, e.g., see Figs. 3-7, the claimed invention. Chen et al's device performs FFT or IFFT, e.g., Abstract. It is noted that Chen et al's device should have the claimed "control signal input unit" for selecting the desired operation.

As per dependent claim 3, Chen et al teach the detail features, e.g., see Figs. 3-4.

As per dependent claim 4, Chen et al teach the detail feature, e.g., see Fig. 6.

As per dependent claim 5, Chen et al's device should have the detail features because they are basic functions.

As per independent claim 6, the claim is similar to independent claim 1 with detail features of FFT/IFFT unit. Chen et al teach all the detail features, e.g., Fig. 6 teaches first, second and third stages butterfly; Fig. 5 teaches twiddle factors. It is noted that Chen et al's device should have the claimed "control signal input unit" for selecting the desired operation.

As per dependent claims 7-8, Chen et al's device should have the detail features because they are basic functions of butterfly stage.

Art Unit: 2193

Due to the similarity of claims 10-12 to claims 3-5, they are rejected under a similar rationale.

8. Claims 1, 4-8 and 11-12 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Andre.

As per independent claim 1, Andre teaches, e.g., see Figs. 5-6, the claimed invention. Andre's device performs FFT or IFFT, e.g., Abstract or claim 1. It is noted that Andre's device should have the claimed "control signal input unit" for selecting the desired operation.

As per dependent claim 4, Andre teaches the detail feature, e.g., see Fig. 3a.

As per dependent claim 5, Andre's device should have the detail features because they are basic functions.

As per independent claim 6, the claim is similar to independent claim 1 with detail features of FFT/IFFT unit. Andre teaches the detail features, e.g., Fig. 3a teaches first, second and third stages butterfly; and twiddle factors is basic component of butterfly stage. It is noted that Andre's device should have the claimed "control signal input unit" for selecting the desired operation.

As per dependent claims 7-8, Andre's device should have the detail features because they are basic functions of butterfly stage.

Due to the similarity of claims 11-12 to claims 4-5, they are rejected under a similar rationale.

Art Unit: 2193

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andre.

Andre has been discussed in paragraph #8 above.

Claims 3 and 10 add "*IFFT at the time of transmitting a signal, and performs an FFT at the time of receiving the signal*" features. These features are well known in the communication art, e.g., see Chen et al's Figs. 3-4 (para. 7 above). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design the claimed invention according to Andres teachings because the FFT/IFFT device is capable of performing *IFFT at the time of transmitting a signal* and performing *an FFT at the time of receiving the signal* as claimed.

10. Claims 2 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited references are art of interest.

12. The following is an examiner's statement of reasons for allowance: the recorded references do NOT teach or suggest the novel "convergent block floating point for compensation quantization noise" feature as recited in dependent claims 2 and 9.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan V. Mai whose telephone number is (571) 272-3726. The examiner can normally be reached on Mon-Wed and Fri. from 9:30am to 2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An, can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is:

Official (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.



Tan V. Mai  
Primary Examiner